REMARKS

The Examiner is thanked for the thorough examination of the present application. The Office Action, however, tentatively rejected all claims 1-19. Specifically, claims 1-19 stand rejected under 35 U.S.C. §112, second paragraph as allegedly indefinite. Claims 5, 11, and 18 stand rejected under 35 U.S.C. § 112, first paragraph. Finally, claims 13 and 15-17 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the combination of Chen (U.S. Patent Number 5,956,523) in view of Lee (U.S. Patent Number 6,230,080).

In response, Applicant has amended most of the claims to address and overcome the stated rejections. Applicant has also made a minor amendment to the specification. Reconsideration of this application as amended is respectfully requested in light of the remarks contained below. Further, Applicant notes that the Office Action indicated that no art was applied to claims 5, 11, and 18 because of the 112 rejections. Also, only claims 13 and 15-17 were rejected based on prior art. Accordingly, as to claims 1-4, 6-10, 12, and 15-17, and 19, define over the prior art and should be allowed upon entry of the amendments herein, which overcome the 112, second paragraph rejections.

Discussion of Claim Rejections under 35 USC §112

The Examiner is thanked for his suggestions with regard to overcoming the rejections under 35 U.S.C. § 112, second paragraph. The specification and claims have been amended pursuant to these recommendations. The claims have also been amended to address and overcome the rejections under 35 U.S.C. § 112, first

paragraph. All amendments are supported by the originally filed application and therefore no new matter has been introduced.

In this regard, the phrase "the analog signal" in original claim 1, line 21, has been amended to "analog signals" to overcome the antecedent problem. The phrase "semiconductor equipment status information" in original claim 1, line 18 has been amended to "semiconductor process status information" to overcome the antecedent problem.

In claim 4, the phrase "semiconductor equipment status information" has been amended to "semiconductor process status information" to avoid the terminology inconsistency.

In claim 5, the phrase "semiconductor equipment status information" has been amended to "semiconductor process status information" to avoid the terminology inconsistency. Also in claim 5, the phrase "wherein standard direct sensor input of the semiconductor equipment status information is thermocouple (J, K, T, E, R, S, B type) or RTD (Pt, Ni, Balco)" has been amended to "wherein standard direct sensor input of the semiconductor process status information is from a thermocouple or a resistance temperature detector (RTD)" to address the alleged clarity issue. Further, "RTD" in claim 5 refers to a resistance temperature detector, and the claim has been correspondingly amended. The specification (on page 6, lines 10-12) has been correspondingly amended, such that the phrase "RTD (Pt, Ni, Balco)" is changed to "Standard current input is ±0~20mA or ±4~20mA. Standard direct sensor input is from a thermocouple (such as J, K, T, E, R, S, or B type) or a RTD (Resistance Temperature Detector, such as Pt, Ni, or Balco alloy RTD)."

In claim 6, the phrase "semiconductor equipment status information" has been amended to "semiconductor process status information" to avoid the terminology inconsistency. Also, the phrase "high or low (0/1)" has been amended to "high or low" to avoid the unclear issue.

In claim 7, the phrase "the analog signal" has been amended to "analog signals" to overcome the antecedent problem. Also, the phrase "semiconductor equipment status information" has been amended to read "semiconductor process status information" to overcome the antecedent problem.

In claim 10, the phrase "semiconductor equipment status information" has been amended to read "semiconductor process status information" to overcome the antecedent problem.

In original claim 11, the phrase "semiconductor equipment status information" has been amended to read "semiconductor process status information" to overcome the antecedent problem. In addition, the phrase "wherein standard direct sensor input of the semiconductor equipment status information is thermocouple (J, K, T, E, R, S, B type) or RTD (Pt, Ni, Balco)" has been amended to read "wherein standard direct sensor input of the semiconductor process status information is from a thermocouple or a resistance temperature detector (RTD)" to avoid the alleged clarity issue. "RTD" in claim 11 refers to a resistance temperature detector, and the claim has been amended accordingly.

In claim 12, the phrase "semiconductor equipment status information" has been amended to read "semiconductor process status information" to overcome the

antecedent problem. Also, the phrase "high or low (0/1)" has been amended to read "high or low" to address the alleged clarity issue.

In claim 13, the phrase "semiconductor equipment status information" has been amended to read "semiconductor process status information" to overcome the antecedent problem.

Claim 14 is cancelled, rendering all issues with that claim moot.

In claim 17, the phrase "semiconductor equipment status information" has been amended to read "semiconductor process status information" to overcome the antecedent problem.

In claim 18, the phrase "semiconductor equipment status information" has been amended to "semiconductor process status information" to overcome the antecedent problem. Also, the phrase "wherein standard direct sensor input of the semiconductor equipment status information is thermocouple (J, K, T, E, R, S, B type) or RTD (Pt, Ni, Balco)" has been amended to read "wherein standard direct sensor input of the semiconductor process status information is from a thermocouple or a resistance temperature detector (RTD)" to address the alleged clarity issue. In addition, "RTD" in Claim 18 refers to a resistance temperature detector, and the claim has been correspondingly amended.

Finally, in claim 19, the phrase "semiconductor equipment status information" has been amended to read "semiconductor process status information" to overcome the antecedent problem. Also, the phrase "high or low (0/1)" has been amended to read "high or low" to address the alleged clarity issue.

Further Response to Rejection under 35 U.S.C. § 112, First Paragraph

With regard to the rejection of claims 5, 11, and 18 under 35 U.S.C. § 112, first paragraph, the Office Action stated that the description on page 6, line 12 does not adequately describe the phrase "RTD (Pt, Ni, Balco)." Applicant has amended the specification and claims to more clearly describe this phrase. Notwithstanding the amendments, however, Applicant submits that the application, as originally filed, fully complied with all statutory requirements, including 35 U.S.C. § 112. In this regard, the application (specification and claims) must be construed from the perspective of a person that is skilled in the art. Further, such an artisan is presumed to have an understanding of the prior art.

Applicant respectfully submits that the original phrase "RTD (Pt, Ni, Balco)" would have been readily understood by a person skilled in the art. In this regard, the undersigned performed a simple Internet search (using the Google search engine) of this exact phrase. Attached as Exhibit A is the results of the first page of this Internet search. Many of the search results point to specifications of commercially-available resistance temperature detectors. The last item on the first page is a short article, which has been attached hereto as Exhibit B. While this Internet search was performed on November 10, 2006, it is certainly reflective of what an artisan would have understood at the time of filing, as these terms have not changed or acquired a differing interpretation since that time. Furthermore, the Examiner can perform similar searches on his own to verify these basic facts.

Accordingly, as the originally filed specification would have been understood by a person skilled in the art, the rejection should be withdrawn. Further, as the application

has been amended to provide even further description of these terms, the rejection has been rendered moot.

Discussion of Claim Rejections under 35 USC §103

Claims 13 and 15-17 stand rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Chen (U.S. Patent Number 5,956,523) in view of Lee (U.S. Patent Number 6,230,080). Claim 13, as amended, clearly overcomes the rejection. Chen and Lee do not disclose all the limitations of claim 13 as amended.

In order for a claim to be properly rejected under 35 U.S.C. §103, the teachings of the prior art reference must suggest all features of the claimed invention to one of ordinary skill in the art. *See, e.g., In re Dow Chemical*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988); *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981).

Claim 13, as amended, defines to a method comprising, among other distinguishing features, converting a start command from the HSMS protocol to the RS232 protocol, RS485 protocol, and to an analog signal and outputting the converted command to acquiring semiconductor process status information from a external sensor, converting the semiconductor process status information from analog signals to the RS485 protocol, RS232 protocol, and to the HSMS protocol, and outputting the semiconductor process status information to an equipment server.

Chen and Lee are both silent in the conversion of the start command from HSMS protocol to RS232 and the semiconductor process status information from RS232 protocol to HSMS protocol. Thus, neither Chen nor Lee teach or suggest all the

limitations of claim 13 of the application. For at least this reason, the rejection should be withdrawn. In addition, Applicant submits that there is no motivation or other proper reason for the combination of Chen and Lee. For at least these reasons, claim 13 is allowable over the cited art.

As claim 13 defines over the cited art, dependent claims 15-17 define over the art for at least the same reasons.

Claims 1 and 7 have been amended to overcome the rejections under 35 U.S.C 112, 2nd paragraph, set forth in the Office action. For the reasons stated above, it is Applicant's belief that claims 1 and 7 are allowable over the cited reference. Claim 13 has been amended to overcome the rejection under 35 U.S.C 103(a). Insofar as claims 2-6 depend on claim 1, claims 8-12 depend on claim 7, claims 15-19 depend on claim 13, it is Applicant's belief that these claims are also in condition for allowance.

An Ensuing Office Action should be Non-Final

For at least the reasons set forth herein, Applicant submits that all rejections should be withdrawn. As noted above, claims 1-4, 6-10, 12, and 15-17, and 19 have been examined and rejected only under 35 U.S.C. § 112, second paragraph. Any ensuing art-based rejections of these claims would constitute new grounds, which would merit a non-FINAL Office Action. Further, as discussed above, originally filed claims 5, 11, and 18 WOULD have been understood by a person skilled in the art (in accordance with evidence reflected in Exhibits A and B hereto). Accordingly, any ensuing Office

Action that makes art-based rejections of these claims should likewise be made no-FINAL.

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request the Examiner's reconsideration of the application and the timely allowance of claims 1-13, and 15-19.

Should Examiner feel that further discussion of the application and the Amendment is conducive to prosecution and allowance thereof, please do not hesitate to contact the undersigned at the address and telephone listed below.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

By:

Daniel R. McClure
Registration No. 38,962

Thomas, Kayden, Horstemeyer & Risley, LLP
100 Galleria Pkwy, NW
Suite 1750
Atlanta, GA 30339
770-933-9500

Sign in

Google

Web Images Video News Maps more »

RTD pt ni balco Search Advanced Search Preferences

Web

Results **1** - **10** of about **194** for **RTD pt ni balco**. (**0.31** seconds)

RTD Temperature Probes
www.sensortecinc.com **RTD**, thermocouple, std. or custom 1, 3, or 5 day expedite, Call Now

RTD Sensors & Technology
www.omega.com/ From thin-film platinum **RTD** Sensors to complete probes we have it all!

Sponsored Links

pt100 **RTD** sensor
We manufacture platinum, nickle, and copper industrial **RTD** sensors.
www.smartsensors.com

[PDF] ADAM-6060 ADAM-6066 ADAM-6015
File Format: PDF/Adobe Acrobat - View as HTML
Pt, **Balco** and **Ni RTD**. Input Impedance. 10 kΩ. NMR @ 50/60 Hz. 100 dB. Power Consumption. 2 W. Resolution. 16 bits. **RTD** Types and Temperature **...**
taiwan.advantech.com.tw/unzipfunc/unziplit.asp?Literature_ID=1-ZII5U - Similar pages

[PDF] Datasheet - **RTD** Module with Modbus, Thermistor Module with Modbus **...**
File Format: PDF/Adobe Acrobat - View as HTML
6 differential. § Input Type. **Pt**, **Balco** and **Ni RTD**. § **RTD** Types and Temperature Ranges. Pt100 **RTD**:. **Pt** -50° C. to. 150° C. **Pt** 0° C. to. 100° C. **Pt** 0° C **...**
www.bb-europe.com/bb-euro/literature/ADAM-4015-16.pdf - Similar pages

[PDF] ADAM-6060, ADAM-6066, ADAM-6015 - Datasheet - Relay/**RTD** Modules
File Format: PDF/Adobe Acrobat - View as HTML
Channels. 7 differential. Effective Resolution. 16-bit. Input Type. **Pt**, **Balco** and **Ni RTD**. **RTD** Types and Temperature Ranges. **PT**-100 **RTD**. **Pt**-50° C **...**
www.bb-elec.com/bb-elec/literature/ADAM-60xx.pdf - Similar pages

RS-485 Remote I/O Solutions
Resolution, Channel, Digital Input/Output, Sensor, Analog Input, Notes, Model Number, Price, Buy Now. 16 bit, 7 diff. **RTD**, **Pt**, **Balco** & **Ni RTD**, ADAM-6015 **...**
www.bb-elec.com/product_multi_family.asp?MultiFamilyId=21 - 103k - Cached - Similar pages

ADAM 4013 - **RTD** Input Module - CyberResearch
ADAM 4015 has six differential inputs with 10 megohms impedance and supports **Pt**, **Ni**, and **Balco** RTDs. ADAM modules use a single twisted pair of wires to **...**
www.cyberresearch.com/store/data-acquisition-control/analog-input-boards-ad-cards/ADAM_4013_3355.2.htm - 31k - Cached - Similar pages

ADAM 4015 - 6 Channel **RTD** Input Module - CyberResearch
A/D Special Features, Accepts **Pt**, **Balco**, and **Ni** RTDs. Input Ranges. **RTD** Types Supported, 100-ohm Platinum (-100° to +100°C), alpha = 0.00385 (IEC) **...**
www.cyberresearch.com/store/data-acquisition-control/remote_das/ADAM_4015_4967.5.htm - 34k - Cached - Similar pages
[More results from www.cyberresearch.com]

eAutomationPro - ADAM-6015 - 7-channel **RTD** InputModule
I/O Type: 7 **RTD**; 10/100Based-T Ethernet; **Supports multi-channel/multi-range**; **Pt**

100/1000, **Ni**, **Balco** 500; Wiring burn-out detect function ...
www.eautomationpro.com/us/product/mod1_1-1TVTU0.aspx - 83k -
Cached - Similar pages

[PDF] ADAM-4015 6-Channel **RTD** Module ADAM-4016 Analog Input/Output ...
File Format: PDF/Adobe Acrobat - View as HTML
Input type: **Pt**, **Balco** and **Ni RTD**. • **RTD** types and temperature ranges: ... **Pt** 1000 **RTD**. **Pt** -40° C to 160° C. **Balco** 500 **RTD**. -30° C to 120° C. **Ni** 50 **RTD** ...
support.elmark.com.pl/advantech/ia/ADAM4000/pdf/4015+4016+4017.pdf -
Similar pages

[PDF] AEIO-6015 7 Channel **RTD** Input Module
File Format: PDF/Adobe Acrobat - View as HTML
Input Type **Pt**, **Balco**, and **Ni RTD**. Input Impedance 10 kΩ. CMR @ 50/60 Hz 150 dB. NMR @ 50/60 Hz 100 dB. Resolution 16 bits. Accuracy ± 0.05 % or better ...
dl.softplc.com/AEIO-6015.pdf - Similar pages

eFunda: Introduction to Resistance Temperature Detectors
The Resistance Temperature Detector (**RTD**) or resistance thermometer uses the ... include platinum, copper, nickel, **Balco**TM (70% **Ni**-30% Fe), and tungsten. ...
www.efunda.com/designstandards/sensors/rtd/rtd_intro.cfm - 29k -
Cached - Similar pages

Result Page: 1 2 3 4 5 6 7 8 9 10 **Next**

Free! Get the Google Toolbar. Download Now - About Toolbar

Google - Search - PageRank Check - AutoLink AutoFill Options Highlight

RTD pt ni balco Search

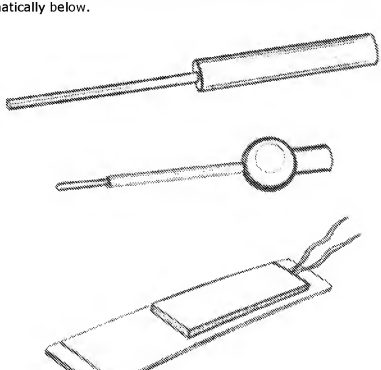
Search within results | Language Tools | Search Tips | Dissatisfied? Help us improve

Google Home - Advertising Programs - Business Solutions - About Google

©2006 Google

Overview

The **Resistance Temperature Detector** (**RTD**) or resistance thermometer uses the fact that the resistance of metals increases with temperature. Examples are RTD's are shown schematically below.



Resistance Temperature Detectors

Top of Page

Further Information

The resistance of commercially available RTDs ranges from 10 to 25,000 Ω. More common ones are 100, 200, and 1000 Ω strain-free platinum (>99.999%) probes and 10 Ω copper probes. Generally, the higher the resistance, the less affected the RTD will be due to small resistance/voltage fluctuations in the lead wires and circuit.

Common metals used in RTDs include platinum, copper, nickel, Balco™ (70% Ni-30% Fe), and tungsten. Their temperature ranges are listed in the following table.

Material	Temperature Range	Note
Platinum (Pt)	-260~1000 °C (-440~1800 °F)	< 550 °C (1022 °F) in most applications
Copper (Cu)	-200~260 °C (-330~500 °F)	
Nickel (Ni)	-200~430 °C (-330~800 °F)	Linearity is not good
Balco (70% Ni-30% Fe)	-100~230 °C (-150~450 °F)	Linearity is not good; cheap to fabricate; high resistance
Tungsten (W)	-100~1200 °C (-150~2200 °F)	

Top of Page

Pros and Cons

- **Pros**:
  - Stable and accurate.
  - Linearity is better than thermocouples.
  - Higher signal-to-noise ratio.

- **Cons**:
  - More expensive.
  - Self heating.
  - Requires a current source.
  - Response time may not be fast enough for some applications.

Top of Page

Thermocouple
Thermocouples & RTDs - All types Industrial, Custom, OEM & Research

Temperature Thermistors
Rated #1 for Overall Performance 14 Years in a Row. Same Day Shipping.

Membership About Us Privacy Disclaimer Contact Advertise
Copyright © 2006 eFunda